

ABSTRACT OF THE DISCLOSURE

A plasma processing method of processing a substrate by controlling the application of a bias to the substrate independently of generation of plasma. The method includes modulating periodically an output value of a high-frequency voltage applied to a substrate base and changing a duty ratio of the periodic modulation for one of each processed substrate and for each of a plurality of processed substrates. The duty ratio is defined as a ratio of a sub-period of a period of the period modulation, during which a large voltage of the output value of the high-frequency voltage is applied, to the period of the periodic modulation.